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The mix of public inputs under tax competition

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Abstract

This paper analyzes how the use of taxation on mobile factors affects the mix of "factor-specific public inputs" set by regional governments (e.g., manpower training for labor; infrastructure for capital). These inputs are defined such that they have impacts analogous to the Harrod-neutral and Solow-neutral technical change. Regional governments provide two types of public input that, respectively, complement immobile and mobile factors. It is shown that the nature of the expenditure mix depends on the elasticity of substitution between these factors. Too much tax revenue is spent on public input complementing mobile (immobile) factors if the elasticity is more than (less than) one, but the mix of these inputs is efficient if the elasticity is equal to one.
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1. Introduction

Expenditures on productive activities, including human capital formation, research and development, land development and infrastructure account for a non-trivial share of public budgets. These public services can be regarded as independent variables of production functions; that is, public inputs. Although there are disputes in the context of empirical analyses over the impacts of these expenditures on productivity and economic growth, it is

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well known that regional governments often use them as policy instruments for regional development and attracting business investment. [1]

The influence of competition for mobile factors on policy-making is the main subject of the tax competition literature. Several papers have considered public input provision in this context. Examples include Zodrow and Mieszkowski [14], Keen and Marchand [7], Matsumoto [9–11]. By using models with a single public input, these papers study overall public expenditure on productive activities. Given that regional governments provide public inputs of many kinds, however, it is interesting to investigate how tax revenues are allocated among them. This paper demonstrates that the use of taxation on mobile factors distorts the mix of public inputs.[2] A complex conceptual problem associated with this study will be how those inputs are classified. (The same problem applies to models with public goods benefiting residents). One possible approach, which is this paper's concern, is to analyze the mix of "factor-specific" public inputs that complement particular private factors of production (e.g., manpower training for labor, infrastructure for capital). In this paper, these inputs are defined such that they have impacts analogous to the Harrod-neutral and Solow-neutral technical change. One might consider that when studying expenditures or programs aimed at particular industries or firms, the mix of "industry-specific" or "sector-specific" public inputs is an important policy issue. However, even in this case, in the decision-making process of detailed policy packages, government officials will have to decide what factor should be supported in those favored industries or firms. On the other hand, when analyzing policy-making on general expenditures on education and infrastructure, the concept of factor-specific public inputs is helpful in examining the composition of public budgets.

This paper uses a simple tax competition model with a single (aggregated) production sector. Regional governments provide two public inputs that, respectively, complement immobile and mobile factors. This simple model yields a very clear insight into the nature of the expenditure mix. The mix inefficiency caused by tax competition depends on the magnitude of substitutability between immobile and mobile factors. The parameters representing the impacts of public input provision on production technology do not play any important role in this paper's qualitative analysis of which type of public input is relatively underprovided or overprovided. If the elasticity of substitution is more than (less than) one, too much tax revenue is spent on public input complementing mobile (immobile) factors. If the elasticity is equal to one, the mix of public inputs is efficient relative to equilibrium tax revenues. Still, the overall level of public expenditure is inefficiently low under tax competition.

[1] See, for example, Bartik [1,2] and Fisher [3, Chapter 22]. Gramlich [4] and Haughwout [5] include reviews of empirical studies of infrastructure policies.

[2] Although Keen and Marchand [7] and Matsumoto [11] investigate the composition of public expenditure under tax competition, their analyses are limited to the mix of public goods and public inputs. Konrad [8] considers the composition of education and infrastructure expenditures, which are factors of production. He focuses on the impact of labor mobility on the expenditure policy made by non-altruistic old generation. His specification of regional production functions differs from that in this paper.

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